इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 12964 (1990): Method of quantitative determination of progressively motile spermatazoa in frozen bull semen [FAD 5: Livestock Feeds, Equipment and Systems]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

IS 12964 : 1990
(Reaffirmed 2000)

Indian Standard

METHOD FOR QUANTITATIVE DETERMINATION OF PROGRESSIVELY MOTILE SPERMATOZOA IN FROZEN BULL SEMEN

UDC 636·082·453·52/·53 : 636·293

© BIS 1990

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

December 1990 **Price Group 1**

Animal Reproduction Equipment and Systems Sectional Committee, FADC 41

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Animal Reproduction Equipment and Systems Sectional Committee had been approved by the Food and Agriculture Division Council.

The Livestock Development Programme is carried out in this country mainly through the Artificial Insemination (AI) technique. The quality of frozen semen, with regard to its viability is an important factor in the successful implementation of the programme. The method contained in this standard gives an indication of the progressively motile spermatozoa in frozen bull semen.

In the preparation of this standard, assistance has been derived from Doc : ISO/TC 34/WG 5 N 79 'Bull sperm — Method of quantitative determination of living spermatozoa in a dose of frozen semen' issued by the International Organization for Standardization.

In reporting the result of a test or analysis made in accordance with this standard, if the final value observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard

METHOD FOR QUANTITATIVE DETERMINATION OF PROGRESSIVELY MOTILE SPERMATOZOA IN FROZEN BULL SEMEN

1 SCOPE

1.1 This Standard lays down the method for determination of an absolute quantity of spermatozoa having a linear motility at the body temperature of an animal in a dose of bull semen preserved in liquid nitrogen and meant for artificial insemination (AI) of cows and heifers.

2 PRINCIPLE

2.1 The frozen semen is defreezed, microphotographed and the number of progressively motile spermatozoa counted.

3 REAGENTS AND APPARATUS

3.1 Monochromous Photographic Reagents

3.2 Photographic Film

3.3 Trisubstituted Sodium Citrate Solution, 2·8 percent.

3.4 Water Bath

At constant temperature of 37 ± 0·5°C.

3.5 Microscope with adapter, condenser, lighting system and thermostatic stage (37 ± 0·5°C) ensuring, magnification by 60 to 140 times (objective 5×, eyepiece 12-28×) for observation and magnification of 25 times (objective 5×, eyepiece 5×) for photo-exposure of a micro-object.

3.6 Counting chamber with a depth of 100 mm for counting blood cells.

3.7 Set of mixers and micropipettes.

4 PREPARATION OF SAMPLES

4.1 Place a dose of frozen semen in the form of coated granules, straws or test pieces in the water bath till it defreezes. Defreeze the divested granules in a 5 cm^3 test tube containing 2·8 percent sodium citrate solution. Take the concentration of the spermatozoa to 1·5 to 2 million in 1·0 ml by diluting with the trisubstituted sodium citrate solution of 2·8 percent at a temperature of 37 ± 0·5°C. Mix carefully the sample, introduce it by means of a micropipette into the counting chamber heated up to 37 ± 0·5°C and place the sample on the thermostatic stage of the microscope.

5 PROCEDURE

5.1 Adjust the magnification of the 60× to 140× microscope and obtain a sharp picture of the object. Obtain the effect of the dark field by adjusting the lighting system, expose (for 2 seconds) three regions of the chamber on the standardized film (eyepiece of the adapter 5×, objective 5×). 15 big squares of the counting chamber should be placed in each region. Develop the negative film and make three photos. The living spermatozoa leave on the photos the trails of their movement, whereas the dead ones have the usual shape. This enables to dffferentiate on the photos the living spermatozoa from the dead ones.

6 EXPRESSION OF RESULTS

6.1 Count the trails left on the three photographs. The number of active spermatozoa in a dose (S) is obtained by the following formula:

$$S = \frac{V_1 \times n \times D}{V}$$

where

V_1 = Volume of a dose of semen;

n = Number of spermatozoa calculated on 45 big squares;

D = Dilution of a sample of semen; and

$V = 18 \cdot 10^{-5}$ = Volume limited by 45 big squares in the counting chamber.

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Revision of Indian Standards

Indian Standards are reviewed periodically and revised, when necessary and amendments, if any, are issued from time to time. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition. Comments on this Indian Standard may be sent to BIS giving the following reference :

Doc : No. AFDC 41 (3080)

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices :		Telephone
Central :	Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	331 01 31 331 13 75
Eastern :	1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola CALCUTTA 700054	37 86 62
Northern :	SCO 445-446, Sector 35-C, CHANDIGARH 160036	2 18 43
Southern :	C.I.T. Campus, IV Cross Road, MADRAS 600113	41 29 16
Western :	Manakalaya, E9 MIDC, Marol, Andheri (East) BOMBAY 400093	6 32 92 95

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR.
COIMBATORE, FARIDABAD, GHAZIABAD, GUWAHATI.
HYDERABAD. JAIPUR. KANPUR. PATNA. THIRUVANAN THAPURAM

Printed at Swatantra Bharat Press, Delhi, India